

REMARKS

Claims 1-9 and 12-39, all the claims originally pending in the application, stand rejected. Claim 4 remains in the case and the designation as “withdrawn” has been removed. Applicant notes that the Examiner has listed this claim as having been examined. Thus, a listing of all of the claims with claim 4 as “original” is presented with this amendment.

Claim Rejections - 35 U.S.C. § 102

Claims 12-16 are rejected under 35 U.S.C. § 102(e) as being anticipated by the newly cited patent to Grossman (5,835,730). This rejection is traversed for at least the following reasons.

With regard to the rejection of claims 12-16, the invention concerns an arrangement of signals in a cell/packet frame, which has a compressed header, for use in communication via wireless links. This focus of the invention on wireless communications is emphasized in the original disclosure at page 1, line 8, and is now expressly stated in the rejected claims. In such environment, whether the wireless communication uses the ATM, frame relay, or Internet packets, there is a significant problem with retaining synchronization. As is understood by one skilled in the art, loss of synchronization, particularly in a wireless environment, will result in a likely loss of meaningful and useful communication.

The patent to Grossman concerns a header compression technique that has no relationship to wireless communication and, in fact, would be incompatible with such communication. Specifically, as disclosed at col. 1, lines 5-8, the purpose of the technique in Grossman is to provide compression of packet headers “to provide the data in a format which simulates data accessed from a computer disk.” The patent further teaches at col. 5, lines 40-60 that an original MPEG Transport Stream with a conventional packet header, as illustrated in Figs. 2 and 3, are compressed “in order to simulate the output format of a computer disk drive” and to that end, “a gap must be provided (e.g., two bytes must be eliminated) from the header data written in to the buffer memory (DRAM 24) by the disk controller.” Thus, as illustrated in Fig. 5 and explained at col. 6, lines 12-26, a 16-bit gap 70 must be inserted between the end of payload data 42 and the next transport packet header 44. The reason for the gap is critical to the application that is

the focus of the Grossman disclosure, namely to “enable the disk controller 22 to recognize that a block of data (e.g., payload 42) needs to be saved and then save the data with a sufficient time margin...”

This is totally different from the demands for transmission efficiency, without sacrificing synchronization and accuracy, that is the focus of the present invention in a wireless environment. Nothing in Grossman teaches or suggests the application of the disk drive compatibility goals and techniques that are the only focus of Grossman to a wireless environment.

In order to emphasize the intended environment, Applicant has amended the claims to recite that the arrangement of signals is for communication via wireless links. On the basis of this focus and the failure of Grossman to even consider such environment, the claims should be patentable.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 4-9, 12-28, 30, 32 and 37-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Raychaudhuri (5,684,791) in view of Grossman (5,835,730). This rejection is traversed for at least the following reasons.

With regard to the rejection of claims 1 and 4-9 (communication system comprising at least two local area networks), 17-22 (apparatus for a satellite/wireless communication system comprising at least two local area networks), 23-26 (apparatus for a frame relay wireless communication system comprising at least two local area networks) and 37-39 (an apparatus for an Internet satellite/wireless communication system comprising at least two local area networks), the clear and express focus of the recited invention is on a “wireless” communication or a “satellite/wireless link.”

Claim 1, specifically requires a “means for compressing said separated header using a lookup table” and combining the compressed header with the payload to form a compressed header cell. Claims 17 and 23 also require similar “means” to perform such function. Claim 37 specifies a detector, a compressor and a combining unit, where the compressor uses a lookup

table. All of these claims specify that the medium is therefore specify a technique that requires a transmitted cell to carry the lookup table index information for a header look up table.

In framing the rejection, the Examiner presents an analysis similar to that which was stated as a basis for rejection of these claims in the previous Office Action, using Raychaudhuri '791 in combination with Raychaudhuri '371 as the primary reference. Notably, the Examiner has not cited Raychaudhuri '371 in the present rejection. Thus, the present rejection may be deficient because the subject matter in Raychaudhuri '371 that was relied upon for the previous rejection is not part of the present rejection.

Even if Raychaudhuri '791 does contain that subject matter, the Examiner does admit that Raychaudhuri '791 is deficient at least in failing to disclose a method and system for a compressing/decompressing a header by using a lookup table for mapping between index coding with VPI/VCI. The Examiner now looks to Grossman for such method, with reference to col. 2, lines 50-67 and col. 6, lines 5-11 and 24-26, as well as col. 7, lines 1-31. Applicant respectfully submits that there is no teaching, suggestion or motivation for combining the two references. In fact, the two references are incompatible.

The Examiner already has admitted that Raychaudhuri '791 is deficient with respect to the implementation of or even need for header compression in a wireless/satellite communication system. Moreover, as Applicant pointed out in the previous amendment, Raychaudhuri '791 has no teaching of compression using a lookup table (note the specification at col. 5, lines 30-44 mentions a 2-byte compressed header). The only table in Fig. 2 is a "schedule table" 44 that resides in the MAC layer, but there is no mention at any place in the specification where table 44 is discussed that the table is used for header compression or that compression information is conveyed using a lookup table index. In short, the entire concept of using a lookup table and lookup table index as an efficient and effective means of achieving compression in a wireless/satellite environment, where the table index is accurately transmitted over a wireless/satellite network, is not taught or suggested. Indeed, there is nothing to suggest that such approach would work in the recited environment.

The Examiner points to Grossman for a teaching of index coding and header compression, and asserts that the application of such technique to Raychaudhuri '791 would be motivated by a desire to reduce overhead and increase throughput in the wireless interface. This position of the examiner begs the question of whether the disk drive environment is at all suitable for teaching or suggesting application of header compression techniques that are customized for a disk drive compatibility issue would even be appropriate for a satellite wireless system. Significantly, Grossman requires the compression to install a gap, necessary for compatibility with a disk drive operation, but wholly incompatible with wireless communication and even more incompatible with a desire to save capacity. Grossman does not reduce transmission content, but simply rearranges it. The gap takes space, and the overall transmission is not compressed. Thus, Grossman does not even suggest reducing headers so that a more efficient transmission in a wireless environment is achieved. At best, Grossman teaches to waste transmission resources at the risk of inaccurate and failed communications.

Further, Grossman does not teach the use of tables, including their generation and transmission, as in the present invention. The Examiner asserts that look up tables are taught at col. 2, lines 50-67 and col. 6, lines 5-11 and 24-26, and col. 7, lines 1-13. However, the teachings do not relate to the maintenance of such tables at opposite ends of a transmission link, with table index information being sent to identify a basis for decompression.

Claims 27, 28, 30 and 32 are directed to a method, with the express limitation that the steps relate to communicating cell/packets in a communication system that has "at least two local area networks that are connected by a satellite wireless communication link." As with the apparatus claims, the environment cited involves unique problems that Raychaudhuri '791 did not recognize or solve, and that Grossman clearly has not concern about, and even teaches away from.

On the basis of the clear and express limitations in the rejected claims, and the dramatic differences in both problems and solutions related to the wireless and disk drive technologies, the rejection should be overcome. The invention is not obvious from the two cited references.

Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Raychaudhuri (5,684,791) in view of Grossman (5,835,730) and Pirez (5,572,548). This rejection is traversed for at least the following reasons.

First, Pirez does not teach how or why header compression for disk drives can be applied to a wireless/satellite network as in Raychaudhuri '791, or the manner in which table-based compression can be applied to such environment.

Second, the Examiner merely cites Pirez for a teaching of an encoding means for encoding an assembled frame, with reference to Fig. 3, item 66, and an interleaver with regard to Fig. 3, item 2. The Examiner asserts that it would have been obvious to apply a QPSK encoder and interleaver for encoding/decoding frames into the system of Raychaudhuri and Grossman. The basic question is why would that be done, given the deficiencies of a system that resulted from the two main references. Moreover, Pirez is a frequency interleaver, not a time interleaver, as would be clear from the claim and its stated environment. Thus, even if the references are combined, the invention is not taught.

Finally, Applicant again notes that the present invention concerns a wireless ATM system with header compression where there is a connection between two LANs. Specifically, Applicant's invention is concerned with connecting two separate LANs with a single (typically satellite) link. Neither Raychaudhuri nor Grossman deals with such multi-LAN system.

Claims 29, 31 and 33 are rejected as being unpatentable over Raychaudhuri (5,684,791) in view of Grossman (5,835,730) and in view of Milway (6,122,279). This rejection is traversed for at least the following reasons.

The basis for patentability of parent claim 27 would apply to this rejection as well since Milway does not remedy the basic deficiency of Raychaudhuri '791 in view of Grossman. There is no teaching of a table index being transmitted and tables at transmitters and receivers being used to permit header compression. Milway is cited merely for its teaching of a hash-based ATM switch. However, there is no discussion of header compression at all. Moreover, as to the system disclosed, the routing information is very different from header information and offers different features if compressed. The header is never modified.

Amendment under 37 C.F.R. § 1.111
Application No. 09/462,894

Claims 34-36 are rejected as being unpatentable over Raychaudhuri (5,684,791) in view of Grossman (5,835,730) and in view of Miyake (5,271,010). This rejection is traversed for at least the following reasons.

The basis for patentability of parent claim 27 would apply to this rejection as well since Miyake also does not remedy the basic deficiency of Raychaudhuri '791 in view of Grossman. There is no teaching of a table index being transmitted and tables at transmitters and receivers being used to permit header compression. Miyake is cited merely for its teaching of a compression table and decompression table. However, that teaching relates to a VC identifier converter. Moreover, the use of the tables is quite different from the header lookup table of the present invention, as the table is used for parallel comparison and not lookup. Further, the parallel comparison table is stored using a control path, not by passing messages along the message path, as with the AHCUC in the present invention. Indeed, there is no discussion of header compression at all. The header is never modified and, thus, no reason for combining with Raychaudhuri or Grossman.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

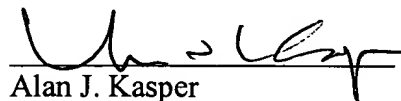
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Respectfully submitted,



Alan J. Kasper
Registration No. 25,426